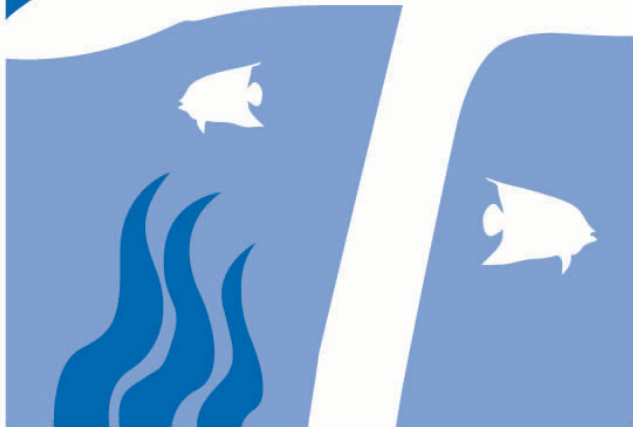


basis

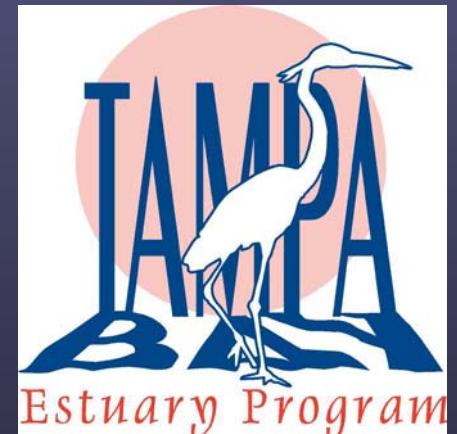


*Bay Area Scientific
Information Symposium*

Progress Towards Goals for Tampa Bay Restoration and Protection

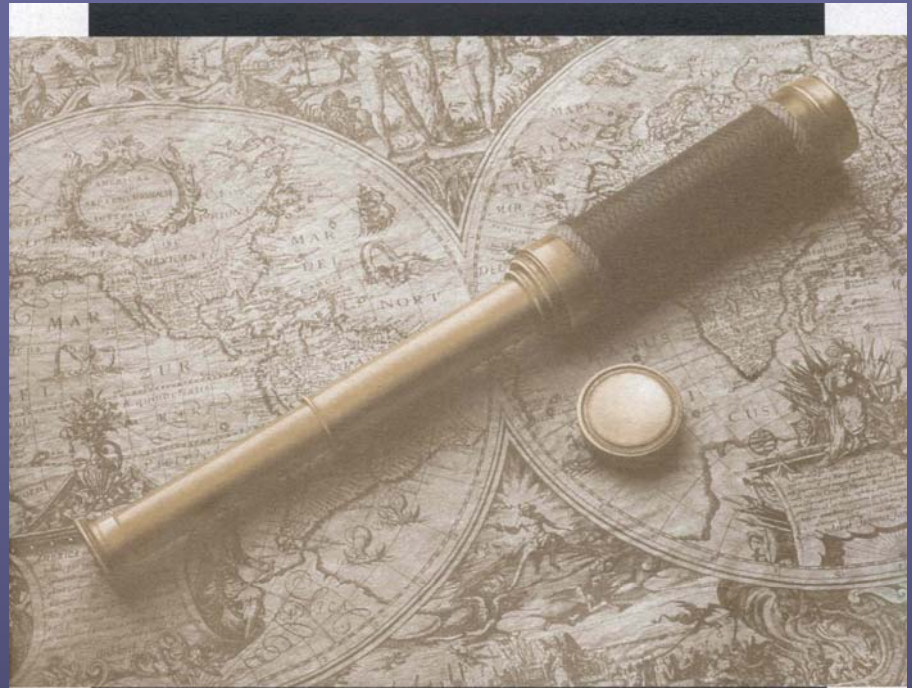
H. Greening
R. Eckenrod
N. Holland

Tampa Bay Estuary Program



In 1996 the
Tampa Bay
Master Plan was
adopted by the
TBEP partners

The 1998
Interlocal
Agreement
included targets
and goals for bay
restoration and
protection



CHARTING *the* COURSE

THE COMPREHENSIVE CONSERVATION
AND MANAGEMENT PLAN FOR TAMPA BAY

Priority Issues facing Tampa Bay:

Water and Sediment Quality

Bay Habitats

Fish and Wildlife

Dredging and Dredged Material
Management

Spill Prevention and Response

WATER AND SEDIMENT QUALITY: 1996 CCMP GOALS

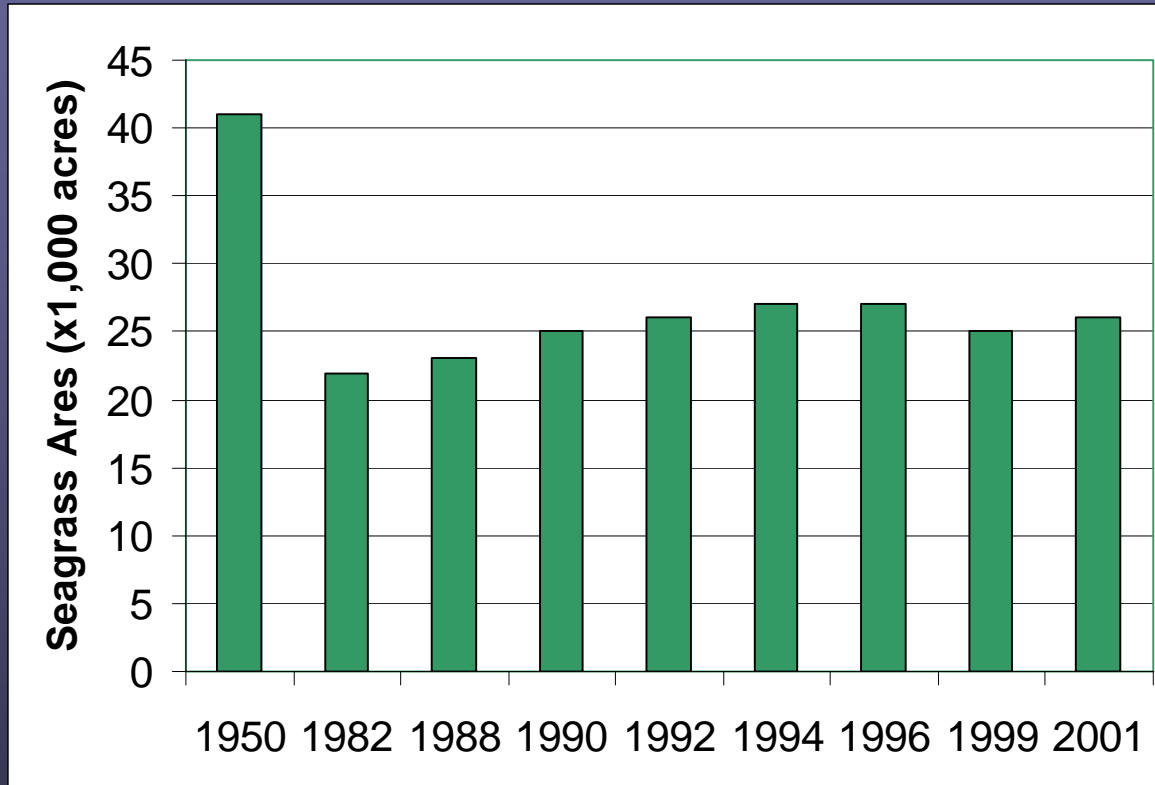
- *Maintain water quality and nitrogen reduction targets needed to meet seagrass goals*
- Gain a better understanding of atmospheric deposition, and identify sources of air pollution
- Reduce toxic chemicals in contaminated sediments and protect clean areas
- Reduce bacterial contamination to levels safe for swimming and shellfish harvesting

Tampa Bay Seagrass Restoration Goal



Difference
Between
1950 and
1990
Seagrass
Cover

SEAGRASS RESTORATION AND PROTECTION

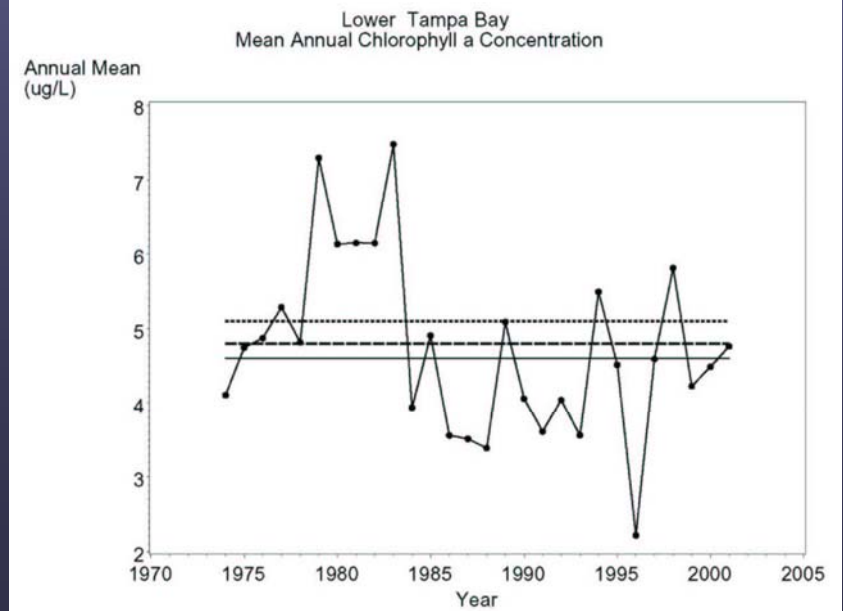
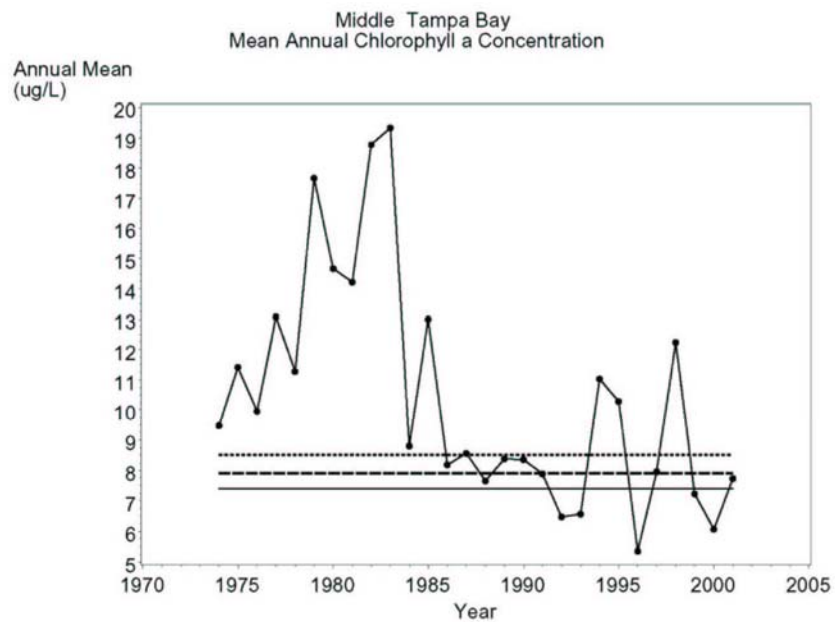
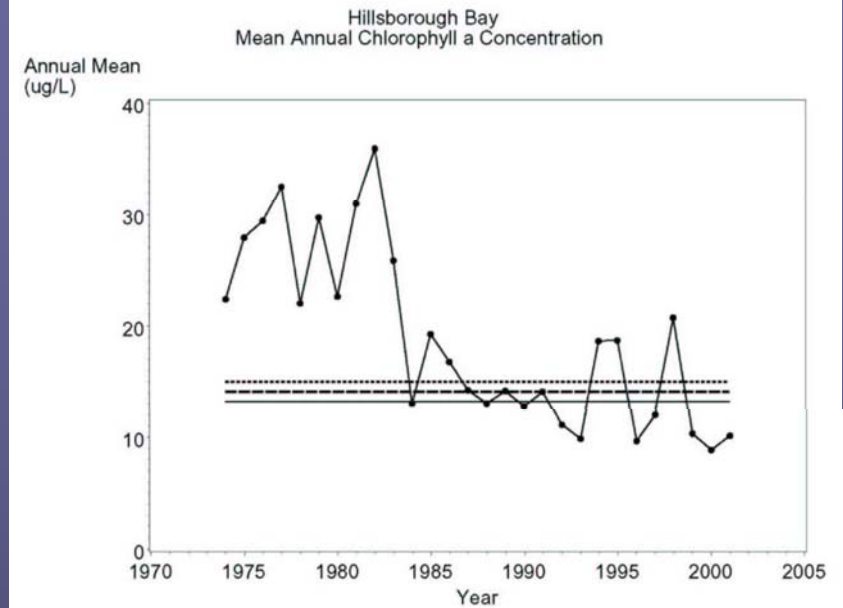
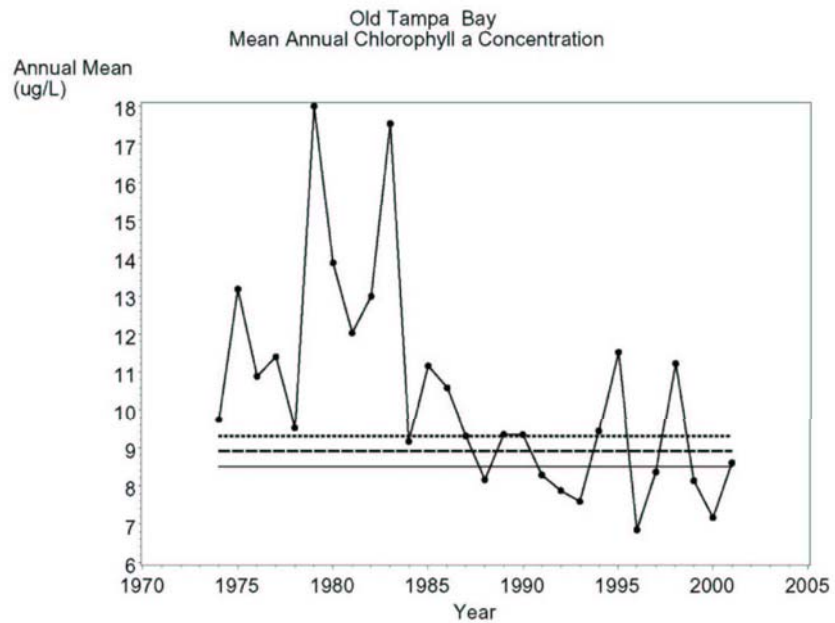


GOAL: Recover an additional 11,920 acres of seagrass over 2002 levels, while preserving the bay's existing 26,080 acres.

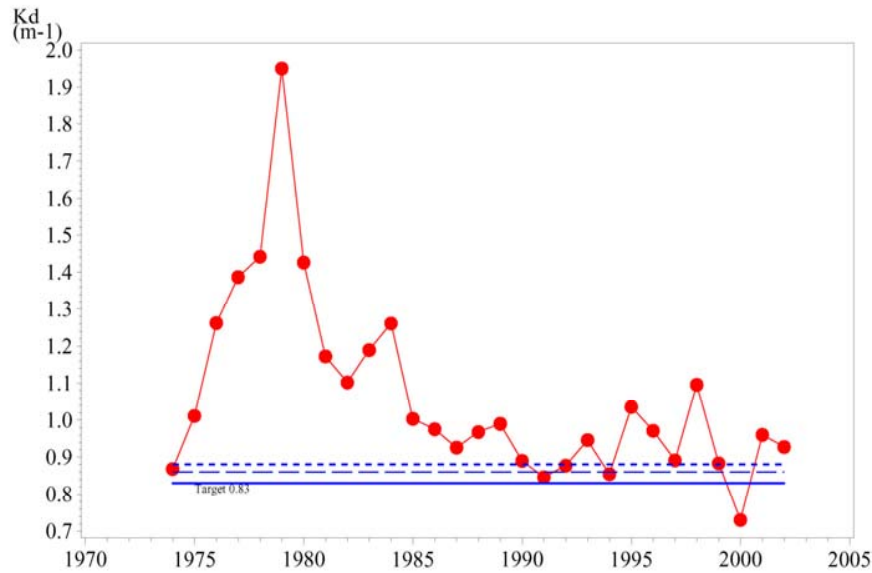
STATUS: Between 1988-1996, seagrass acreage increased 200-300 acres per year. El Nino rains resulted in seagrass losses of about 2,000 acres between 1996-1999. In January 2002, seagrass acreage increased by 1,237 acres to 26,078 acres baywide, a 5% increase from 1999.

Tampa Bay Goals and Targets

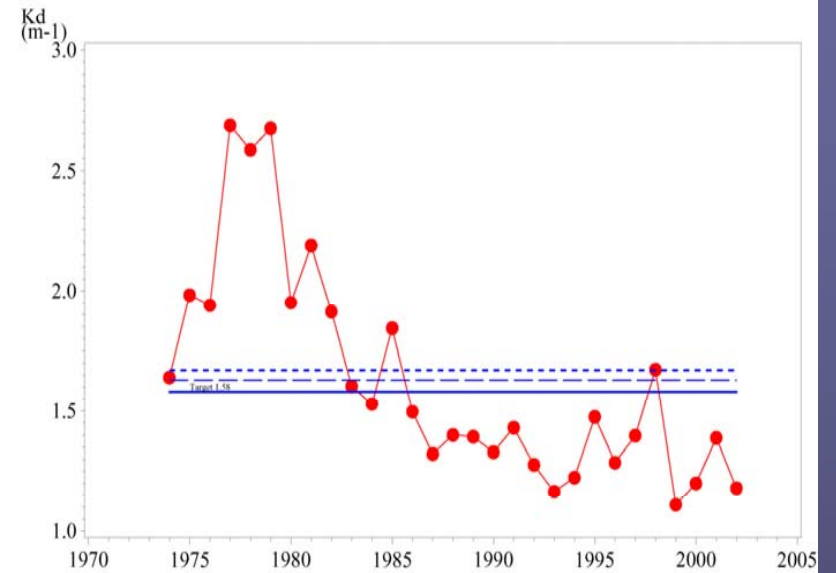
- *Chlorophyll a concentrations*: Maintain concentrations equal to 1992-1994 levels, to maintain water clarity adequate for seagrass recovery
- *Light attenuation (K_d)*: Maintain a minimum of 20.5% light to target depths for seagrass recovery



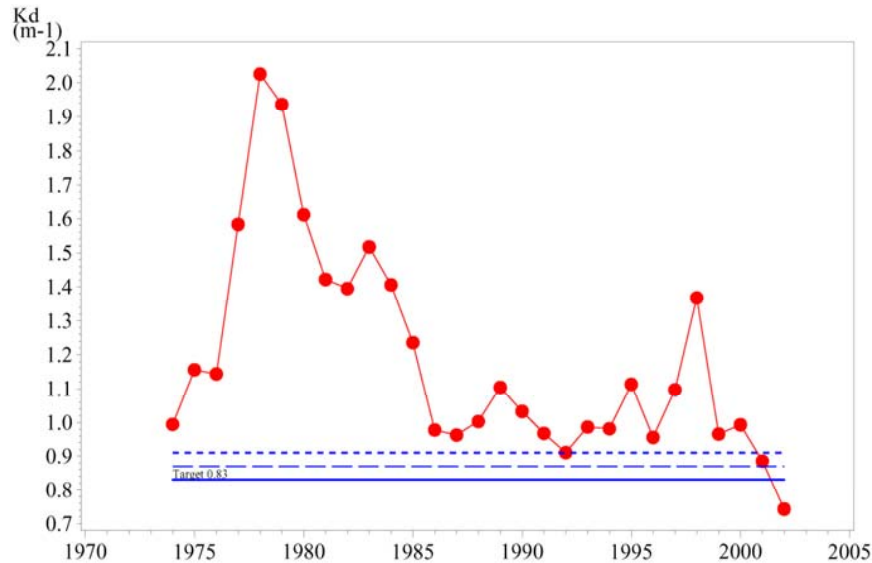
Old Tampa Bay
Mean Annual Light Attenuation



Hillsborough Bay
Mean Annual Light Attenuation



Middle Tampa Bay
Mean Annual Light Attenuation



Lower Tampa Bay
Mean Annual Light Attenuation

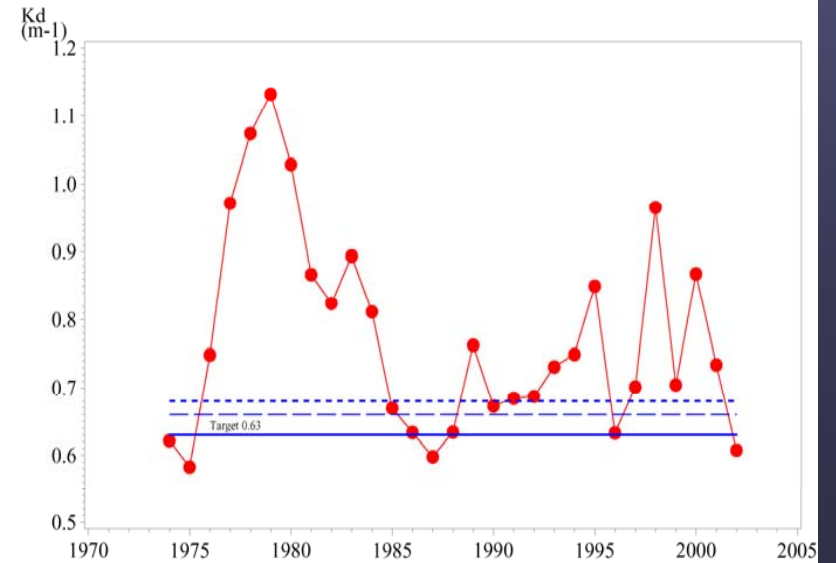


Table 3. Decision matrix results.

Year	Old Tampa Bay	Hillsborough Bay	Middle Tampa Bay	Lower Tampa Bay
1975	Red	Red	Red	Green
1976	Red	Red	Red	Yellow
1977	Red	Red	Red	Red
1978	Red	Red	Red	Yellow
1979	Red	Red	Red	Red
1980	Red	Red	Red	Red
1981	Red	Red	Red	Red
1982	Red	Red	Red	Red
1983	Red	Yellow	Red	Red
1984	Red	Green	Red	Yellow
1985	Red	Red	Red	Yellow
1986	Red	Yellow	Red	Green
1987	Red	Yellow	Red	Green
1988	Yellow	Green	Yellow	Green
1989	Red	Yellow	Red	Yellow
1990	Red	Green	Red	Yellow
1991	Green	Yellow	Yellow	Yellow
1992	Yellow	Green	Yellow	Yellow
1993	Yellow	Green	Yellow	Yellow
1994	Yellow	Yellow	Red	Red
1995	Red	Yellow	Red	Yellow
1996	Yellow	Green	Yellow	Green
1997	Yellow	Green	Red	Yellow
1998	Red	Red	Red	Red
1999	Yellow	Green	Yellow	Yellow
2000	Green	Green	Yellow	Yellow
2001	Yellow	Green	Yellow	Yellow
2002	Yellow	Green	Green	Green

Tampa Bay Nitrogen Management Goal

To provide water quality conditions necessary to restore seagrasses to target levels, “hold the line” at nitrogen loading estimated for 1992-1994. To compensate for expected growth, *reduce or preclude additional nitrogen loading by 17 tons per year (starting in 1995)*

Year 2000 reduction goal: 84 tons/year

The yearly reduction goal has now been extended through 2004

1995-1999 Nitrogen Management Consortium Action Plan

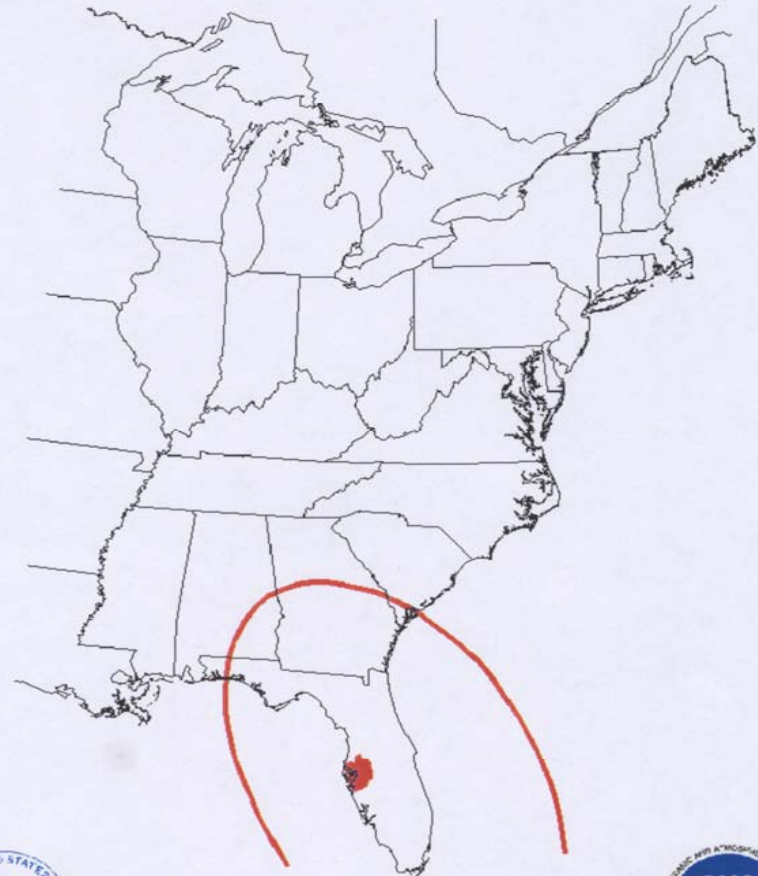
- ➡ Total of 105 projects by local governments, agencies and industry
- ➡ 134 tons per year reduction in N-loading by 2000
- ➡ Exceeds 1995-1999 reduction goal by 60 percent
- ➡ 50% of total load reduction achieved through public sector projects, and 50% by industry
- ➡ Ongoing effort for 2000-2004 NMC Action Plan-electronic database

WATER AND SEDIMENT QUALITY: 1996 CCMP GOALS

- Water quality and nitrogen reduction targets needed to meet seagrass goals
- *Gain a better understanding of atmospheric deposition, and identify sources of air pollution*
- Reduce toxic chemicals in contaminated sediments and protect clean areas
- Reduce bacterial contamination to levels safe for swimming and shellfish harvesting

- Preliminary results indicate the nitrogen airshed for Tampa Bay includes all of Florida and north almost to Atlanta. Estimates indicate that more than 35% of the atmospheric deposition of nitrogen to Tampa Bay is not local.

PRINCIPAL OXIDIZED NITROGEN AIRSHED FOR:
TAMPA BAY



DEVELOPED BY R. DENNIS, ATMOSPHERIC SCIENCES MODELING DIVISION:
ARL, NOAA, and NERL USEPA



Sources of Atmospheric Loadings

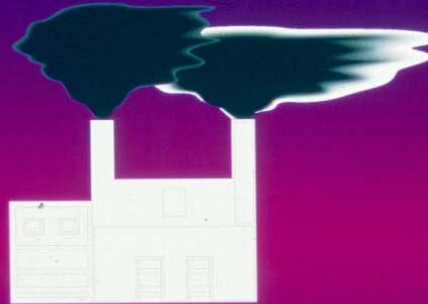
Great Waters Pollutants of Concern

Anthropogenic Sources:



Industries, Utilities

*Cadmium, Lead,
Mercury, Nitrogen,
Polycyclic Organic
Matter (POM),
Dioxins, Furans*



Municipal Waste Combustors

*Cadmium,
Hexachlorobenzene,
Mercury, POM,
Dioxins, Furans
PCBs*



Agriculture

*Chlordane,
DDT/DDE
Dieldrin
Hexachlorobenzene,
Lindane, Toxaphene*



Motor Vehicles

Lead, Nitrogen, POM

Source: Great Waters, 1994 First Report to Congress

Preliminary data also suggests that, although mobile sources (automobiles, trucks) contribute ca. 35% of the nitrogen emissions in the Bay area, they contribute more than 50% of the atmospheric nitrogen deposited on the bay and watershed.

WATER AND SEDIMENT QUALITY: 1996 CCMP GOALS

- Water quality and nitrogen reduction targets needed to meet seagrass goals
- Gain a better understanding of atmospheric deposition, and identify sources of air pollution
- *Reduce toxic chemicals in contaminated sediments and protect clean areas*
- Reduce bacterial contamination to levels safe for swimming and shellfish harvesting

Contaminated Sediments: Management Questions

- Develop targets for sediment condition: how clean is clean?
- Evaluate options for addressing those confined areas of sediment contamination, including removal, capping, and chemical remediation (all these have impacts of their own)

Tampa Bay Benthic Index

Classification

- Healthy
- Indeterminant
- Degraded

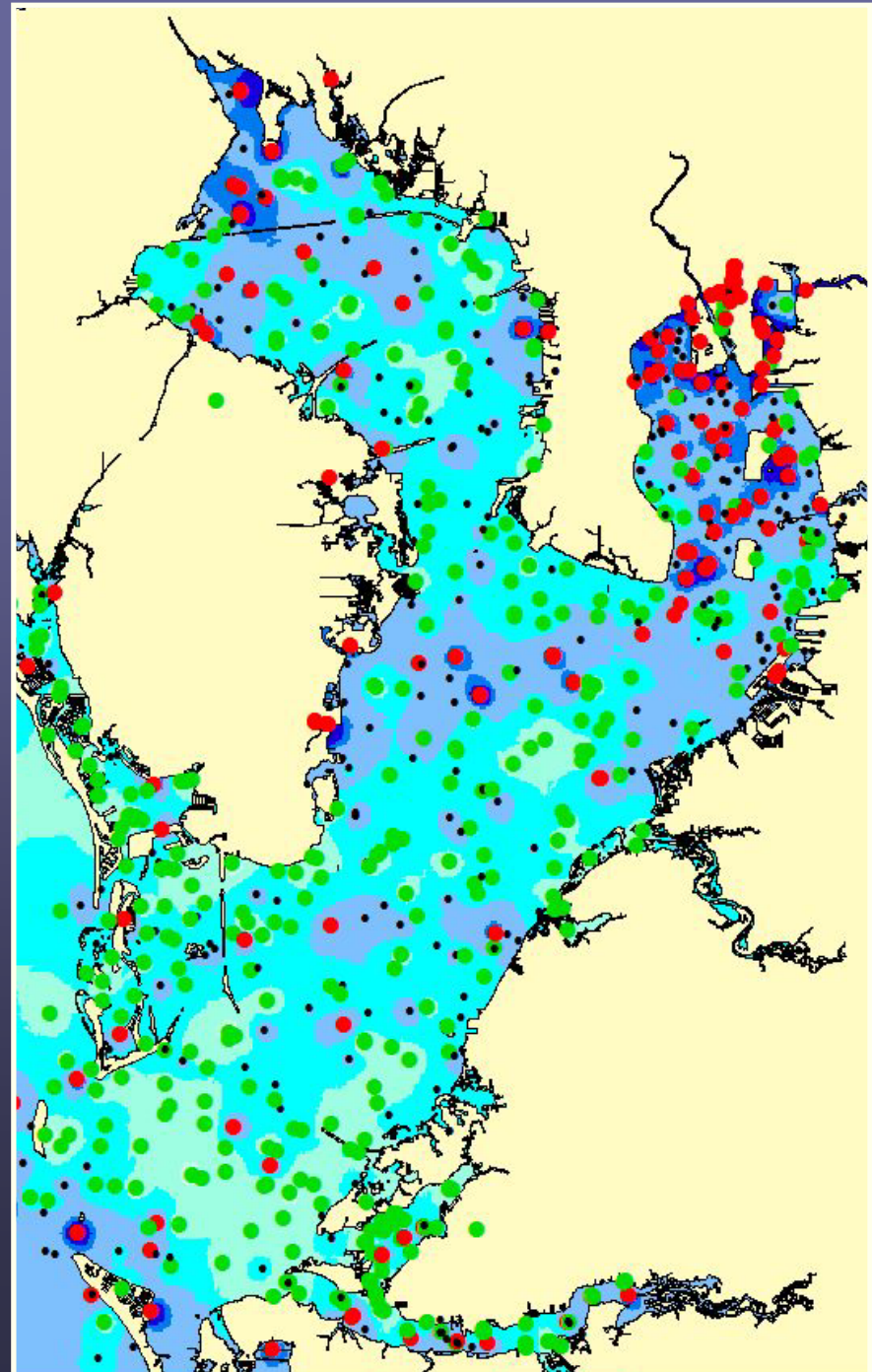
Index Score



10 —————> 0

Healthy

Degraded

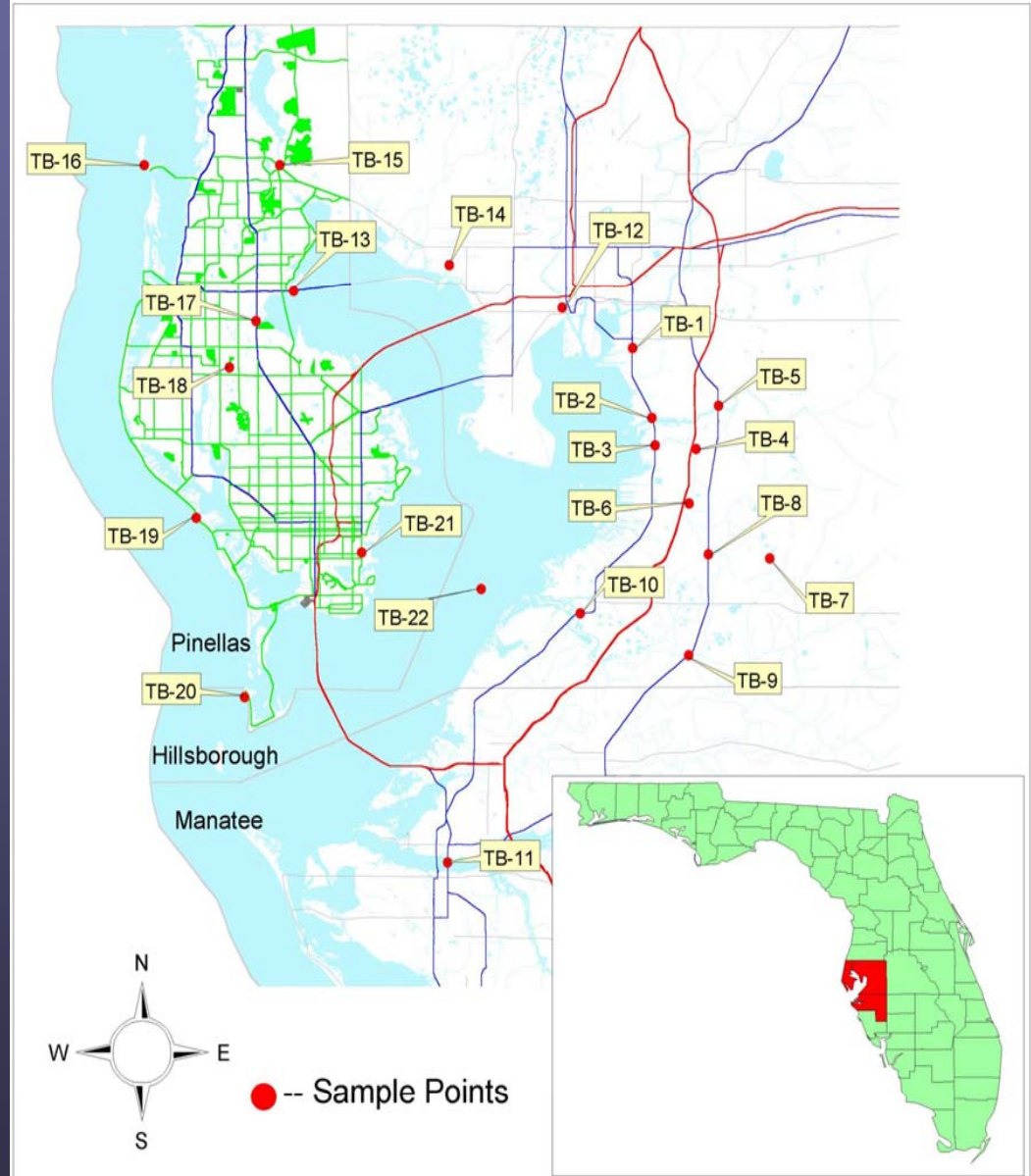


WATER AND SEDIMENT QUALITY: 1996 CCMP GOALS

- Water quality and nitrogen reduction targets needed to meet seagrass goals
- Gain a better understanding of atmospheric deposition, and identify sources of air pollution
- Reduce toxic chemicals in contaminated sediments and protect clean areas
- *Reduce bacterial contamination to levels safe for swimming and shellfish harvesting*

Healthy Beaches Sampling Locations

- Healthy Beaches Study (1999):
- “hot spots” in Bullfrog Creek, Sweetwater Creek, Allens Creek
- recommended indicators: fecal coliform bacteria and enterococci
- *Bacteriodes* for studying wastewater facilities and septic system inputs

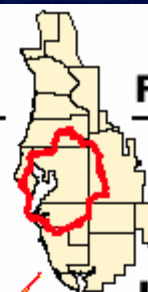


EMERGENT BAY HABITATS : 1996 CCMP GOALS

- *"Restore the historic balance" of coastal wetland habitats by restoring at least 100 acres of low-salinity habitat every 5 years*
- Preserve the bay's 18,800 acres of marsh and mangrove habitat, including 28 priority sites
- Establish and maintain adequate freshwater flows to the bay and its tributaries

Tampa Bay Habitat Restoration Projects

February 24, 2003



Pasco, Pinellas,
Hillsborough,
Polk & Manatee
Co.'s

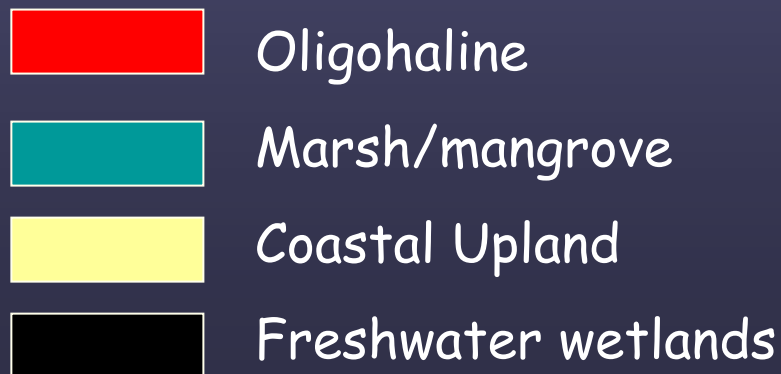
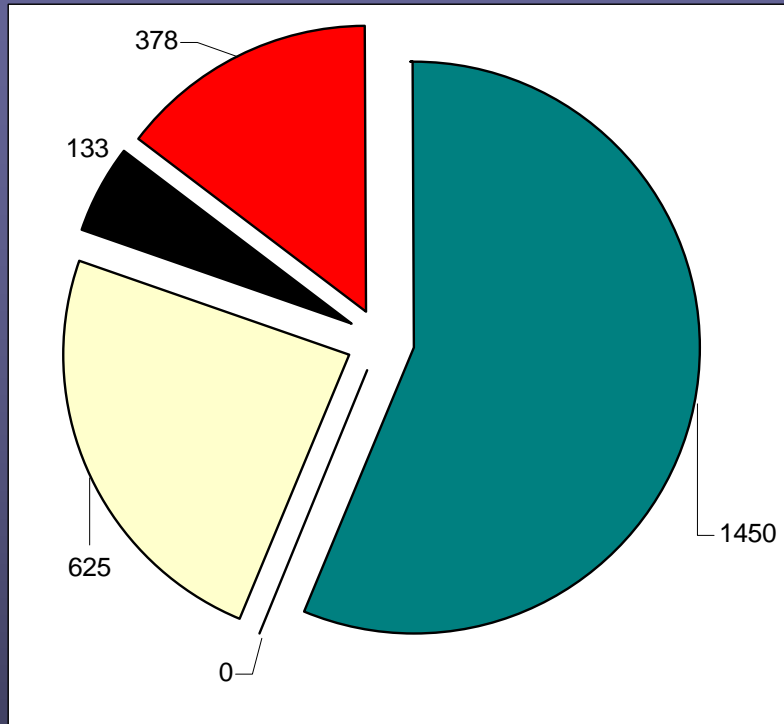
LEGEND

1. Allen's Creek – Complete & Other Phases Under Dev.
2. Bartlett Park
3. Bayshore Blvd.
4. Boca Ciega I & 2
5. Braden River
6. NE McKay Bay
7. Cargil S. Parcel
8. Clam Bayou – 2 Complete & 3 Under Dev.
9. Cockroach Bay
10. Cooper's Point
11. Cypress Point
12. Del Oro Park
13. E.G. Simmons Park
14. Emerson Point
15. Gandy Park
16. Gateway Tract
17. Harbor Palms Park
18. Hendry Fill
19. Howard Frankland Spit
20. Joe's Creek I
21. Jungle Prada Park
22. Lake Tarpon Outfall Canal I & 2
23. Little Bayou
24. Mangrove Bay
25. MacDill Air Force Base I & 2
26. Mobbly Bay – Complete & Other Phases Under Dev.
27. Ribbon of Green
28. Osgood Point
29. Peanut Lake
30. Picnic Island
31. Terra Ceia (U.S. 19)
32. T.C. Aquatic & Buff Preserve
33. Wolf Branch Creek
34. Lowry Park
35. The Kitchen – I Complete
36. Apollo Beach
37. Balm Road
38. South Skyway
39. Polaris Park
40. Braden River II
41. Ballast Point
42. Fort Brooke
43. S. Tampa Greenway: Tappan Site
44. Palmetto Estuary I – Complete & Other Phases Under Dev.
45. Reed Property
46. Fort Desoto Park
47. Largo Central Park Habitat Restoration
48. River Garden Stabilization Study
49. Hillsborough River State Park



TAMPA BAY HABITAT RESTORATION *

1996–2003 SUMMARY



GOAL: *“Restore the historic balance” of coastal wetland habitats by restoring at least 100 acres of low-salinity habitat every 5 years*

STATUS: A total of 2,357 acres of estuarine habitat, including 378 acres of oligohaline habitat was restored between 1996–2003.

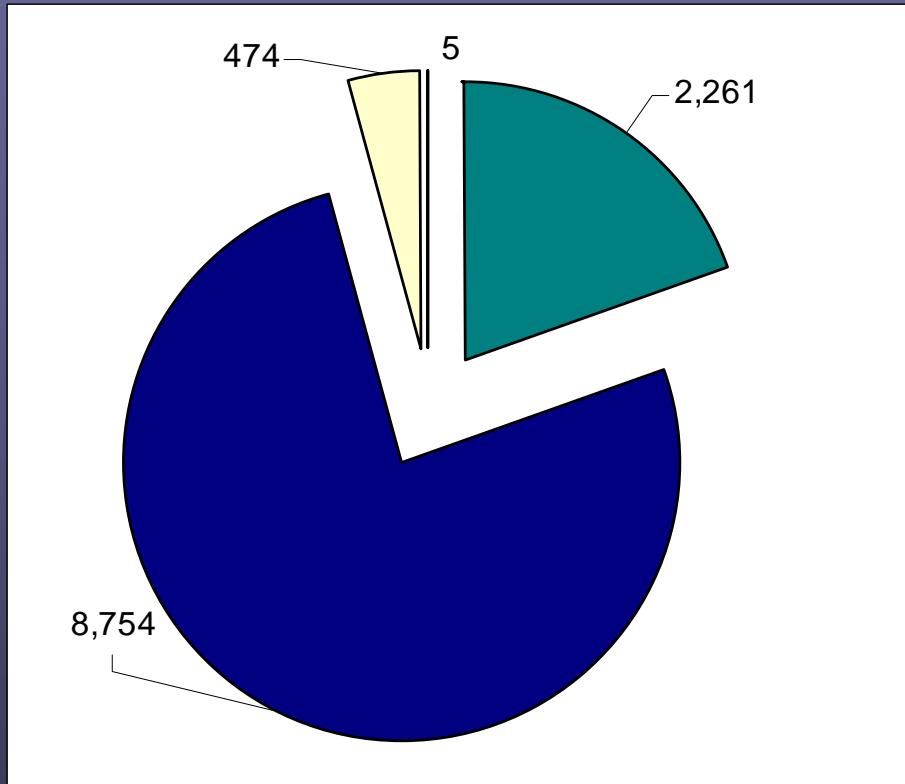
*As reported by TBEP partners

EMERGENT BAY HABITATS : 1996 CCMP GOALS

- "Restore the historic balance" of coastal wetland habitats by restoring at least 100 acres of low-salinity habitat every 5 years
- *Preserve the bay's 18,800 acres of marsh and mangrove habitat, including 28 priority sites*
- Establish and maintain adequate freshwater flows to the bay and its tributaries

TAMPA BAY HABITAT PROTECTION/ACQUISITION *

1996-2003 SUMMARY



GOAL: *Preserve the bay's 18,800 acres of marsh and mangrove habitat, including 28 priority sites*

STATUS: A total of 11,494 acres of estuarine habitat, including 2,261 acres of marsh/mangrove was preserved through acquisition between 1996–2003.

*As reported by TBEP partners

FISH AND WILDLIFE: 1996 CCMP Goals

- *Improve on-water enforcement of fishing and environmental regulation*
- Develop recommendations for local manatee protection zones.

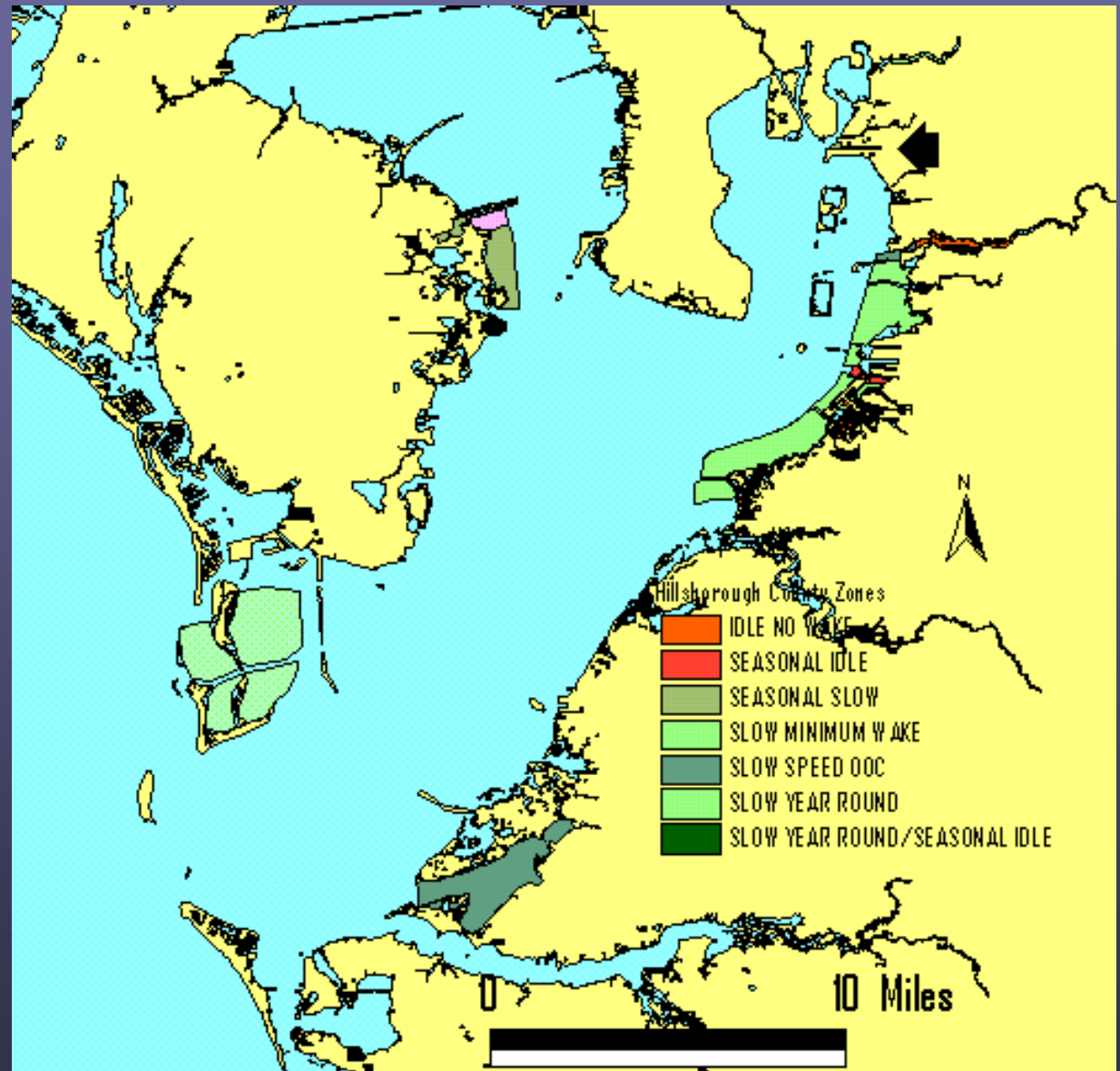
On-Water Enforcement

- FWC and GFC merger resulted in increased on-water presence in Tampa Bay;
- Local governments (Pinellas, Hillsborough and Manatee counties) have increased on-water presence;
- Educational on-water presence by Manatee Watch and other programs.
- RESULTS: Increased presence, but not adequate for baywide protection

FISH AND WILDLIFE: 1996 CCMP Goals

- Improve on-water enforcement of fishing and environmental regulation
- *Develop recommendations for local manatee protection zones.*

Existing Tampa Bay Manatee Protection Zones (regulated and voluntary)



Recommendations to FWC from Tampa Bay Manatee Protection Zones Local Rule Review Committee, Summer 2003

- Support all existing county seagrass and manatee protection speed zones, without change
- Limit boat speeds in the Little Manatee River to 25 mph west of I-75, and slow speed east of I-75
- Limit boat speeds in all channels in Upper Old Tampa Bay in Hillsborough County to 25 mph
- Limit boats to slow speed in the Lower Braden River and mark a 25 mph channel in the Upper Braden River

DREDGING AND DREDGED MATERIAL MANAGEMENT: 1996 CCMP Goals

- Develop a long-range dredged material management plan for the bay that will minimize environmental impacts and maximize beneficial uses of the dredged material.
- *2003 STATUS: DMMS complete. Implementation ongoing; ACOE Harbor Studies underway.*

SPILL PREVENTION AND RESPONSE: 1996 CCMP Goals

- Install a state-of-the-art vessel traffic and information system (VTIS) to improve coordination of ship movements along the bay's narrow shipping channel.
- *2003 STATUS: Vessel Traffic System established. PORTS still needs permanent funding.*

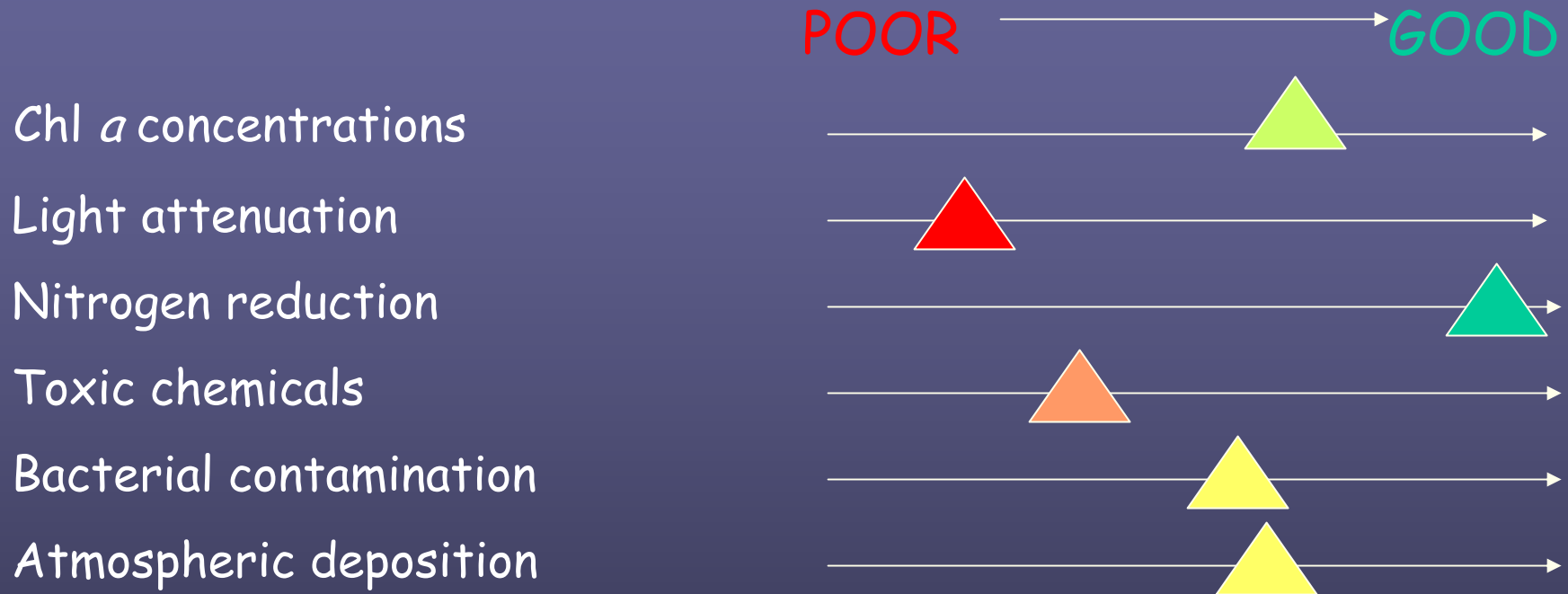
Invasive Species (New Action)

- **Assessment**: Assess the extent of existing invasive species in Tampa Bay
- **Education**: Eyes on the Bay



PROGRESS TOWARDS TBEP GOALS

WATER & SEDIMENT QUALITY



**TBEP STAFF EVALUATION
OCTOBER 2003**

PROGRESS TOWARDS TBEP GOALS

HABITAT RESTORATION & PROTECTION

POOR → GOOD

Seagrass



Oligohaline Restoration



Estuarine Preservation



FISH & WILDLIFE

On-water enforcement



Manatee Protection Zones



Invasive species



**TBEP STAFF EVALUATION
OCTOBER 2003**

PROGRESS TOWARDS TBEP GOALS

DREDGED MATERIAL MANAGEMENT

POOR → GOOD

Dredged Material
Management Plan



Spill Prevention & Response

VTIS and PORTS



**TBEP STAFF EVALUATION
OCTOBER 2003**

An aerial photograph of a coastal region. The left side of the image shows a dense, dark green forested area. A light-colored, sandy or silty path or inlet winds from the bottom left towards the center. To the right of this path is a body of water with varying shades of blue and green, indicating different depths or vegetation beneath the surface. In the far distance, a thin line of land or a bridge is visible across the water.

PROGRESS TOWARDS GOALS FOR TAMPA BAY RESTORATION AND PROTECTION

MAKING PROGRESS, BUT REACHING
GOALS WILL REQUIRE CONTINUED
STRONG SCIENCE, COOPERATION
AND DEDICATION